Name _____ Course/Section_____

Date _____ Professor/TA _____

Activity 13.2 How do mitosis and meiosis differ?

Review the processes of mitosis and meiosis in Chapters 12 and 13 of *Biology,* 7th edition, then fill in the chart. Keep in mind that the stages of cell division were first recognized from an examination of fixed slides of tissues undergoing division. On fixed slides, cells are captured or frozen at particular points in the division cycle. Using these static slides, early microscopists identified specific arrangements or patterns of chromosomes that occurred at various stages of the cycle and gave these stages names (interphase, prophase, and so on). Later work using time-lapse photography made it clear that mitosis and meiosis are continuous processes. Once division begins, the chromosomes move fluidly from one phase to the next.

1. What events occur during each phase of mitosis and meiosis?

	Interphase	Prophase	Metaphase	Anaphase	Telophase & cytokinesis
Mitosis	For example: *G_1 – cell growth* *S – DNA duplication* *G_2 – cell growth*		For example: *Duplicated chromosomes, each with two sister chromatids, line up independently on the metaphase plate*		
Meiosis I					
Meiosis II					

2. Fill in the chart to summarize the major similarities and differences in the two types of cell division (mitosis vs. meiosis). For similarities, include the event(s) that always happen(s) in prophase, for example, no matter which of the cell division cycles you're describing.

	Interphase	Prophase	Metaphase	Anaphase	Telophase
a. What similarities do you see?					
b. What differences do you see?					

c. If the amount of DNA in a somatic cell equals *X* during G1 of interphase, how much DNA is present in the cell during each of the phases of mitosis and meiosis?

Amount of DNA in:	Interphase	Prophase	Metaphase	Anaphase	Telophase
Mitosis					
Meiosis I					
Meiosis II					